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### **Conversion of spinosyn A and spinosyn D to their respective 9- and 17-pseudoaglycones and their aglycones.**

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Forosamine at the 17-position of spinosyns A and D was hydrolyzed under mild acidic conditions to give the corresponding 17-pseudoaglycones. The tri-O-methylrhamnose at the 9-position of the 17-pseudoaglycone of spinosyn A was hydrolyzed under more vigorous acidic conditions to give the aglycone of spinosyn A. However, these conditions led to decomposition of the 17-pseudoaglycone of spinosyn D, presumably due to more facile protonation of the 5,6-double bond to produce a tertiary carbonium ion which undergoes further rearrangements. Spinosyns J and L (3'-O-demethyl spinosyn A and D, respectively) obtained from fermentation of biosynthetically-blocked mutant strains of *Saccharopolyspora spinosa*, were oxidized to give the corresponding 3'-keto-derivatives and the resultant keto-sugars were then beta-eliminated under basic conditions to give the 9-pseudoaglycones of spinosyns A and D respectively. Forosamine at the 17-position of the 9-pseudoaglycone of spinosyn D was then readily hydrolyzed to yield the aglycone of spinosyn D.

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